

DRAINAGE ANALYSIS SUMMARY
FRISCO LANE DRAINAGE

Project No. 20-134
10.6.20

The existing drainage system consists of a run of large diameter RCP, beginning with a 42" RCP and transitioning to 48" RCP. An area of approximately 46.90 acres drains to the upstream end of the system. The system also collects a small amount of street drainage through a pair of curb inlets in the cul-de-sac of Frisco Lane (this flow is negligible compared to the upstream basin).

Based on my analysis, the 10-year storm flow to the system is 156 cfs, which well exceeds the capacity of the system (as evidenced by the reported flooding issues in the area). The system is only capable of handling approximately 70 cfs. The 2-year storm flow is 86 cfs. The upstream detention volume required to reduce the flow to this value is approximately 200,000 cubic feet or 4.6 acre-feet. The construction of a pond with this volume would require a footprint of 1.5 acres with an average depth of around 3 feet.

The capacity of the system could be roughly doubled (to approximately 140 cfs) by adding a parallel run of same sized pipe next to the existing pipe. The curb inlets and junction box (3 total) on the system would have to be modified/rebuilt.

The other option would be to replace the system with a run of box culvert. An 8' x 4' box would carry the full 10-year flow.

A single 60" RCP would carry 120 cfs or roughly 75% of the 10-year flow.

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